Y7 Maths

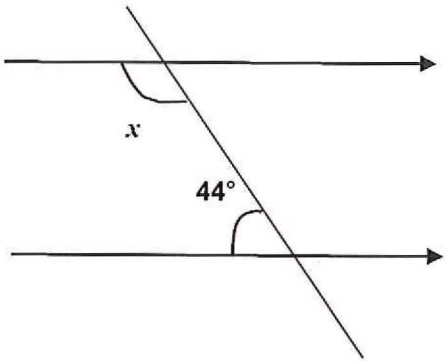
Unit 5 Test

Name: _____

Angles and Shapes

Please note that **none** of the diagrams in this test are drawn to scale.

1



a Find x

136 (A1) °

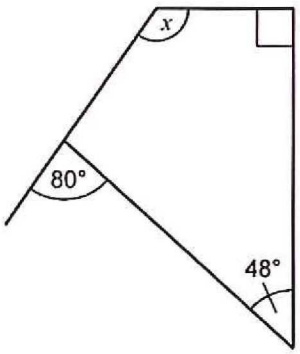
b Give a reason for your answer

Interior angles add to 180° (A1)

(< angles is not enough for this mark)

(2 marks)

2 Work out the size of angle x.



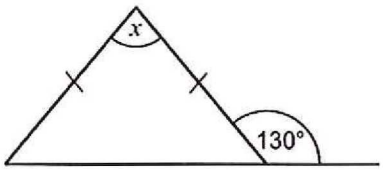
180 - 80 = 100 (M1)

360 - 90 - 48 - 100 (M1)

122 °

(3 marks)

3 Find the size of angle x.



180 - 130 = 50 (M1)

130 - 50 = 80 (M1)

or

180 - 2 × 50 = 80

80 (A1) °

(3 marks)

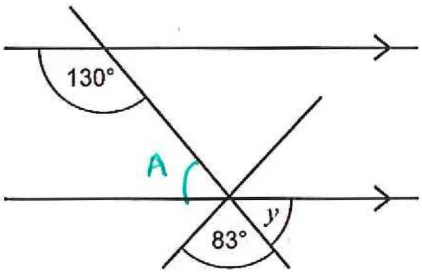
4 What are the sum of interior angles in an Octagon?

$180 \times (8-2)$ M1 $= 1080$

1080 A1 .....°

(2 marks)

5 Find the size of angle y.



M1
$180 - 130 = A$
$50 = A$

A1
50 .....°

(2 marks)

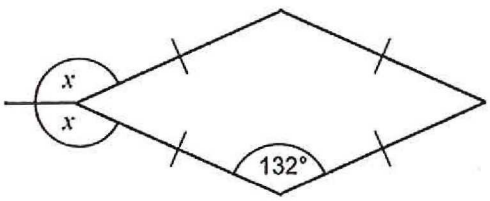
6 Calculate the size of the external angle of a regular decagon (10 sides).

M1 $\frac{360}{10} = 36$

A1
36 .....

(3 marks)

7 Find the size of angles x.



M1
$180 - 132 = 48$

M1
$360 - 48 = 2x$
$156 = x$

A1
156 .....°

(3 marks)

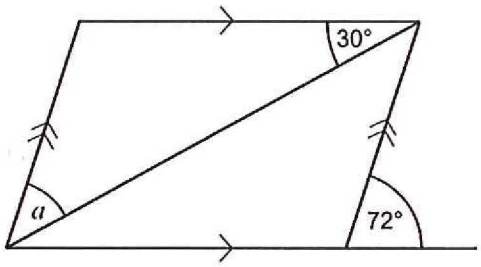
8 Fill in the table below

Shape	Order of rotational symmetry	Number of lines of symmetry
Parallelogram	2	0
Equilateral Triangle	3	3
Kite	1	1

A1 for each

(6 marks)

9 Find the size of angle a.



M1
180 - 72 = 108

M1
180 - 30 - 108 = 42 = a

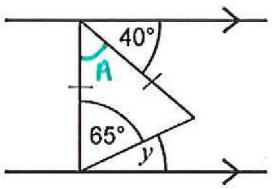
M2
72 - 30 = 42

← or ↗

A1
42 °

(3 marks)

10 Find the size of angle y.



M1
A = 180 - 2 × 65
= 50

M1
A + 40 + 65 + y = 180

M1
y = 180 - 40 - 65 - A

A1
25 °

(4 marks)

11 A regular polygon has an interior angle of 156°.

Work out the number of sides.

$180 - 156 = 24$ (M1)

$\frac{360}{24} = n$ (M1)

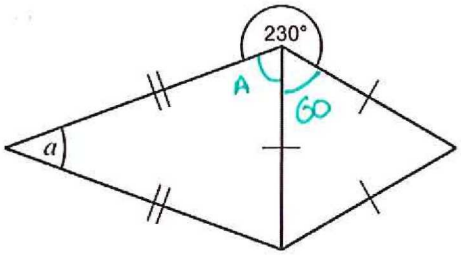
$n = 15$

15 (A1)

.....

(3 marks)

12 Calculate the size of the angle a.



$360 - 230 - 60 = A$ (M1)

$70 = A$

$180 - 2 \times 70 = a$ (M1)

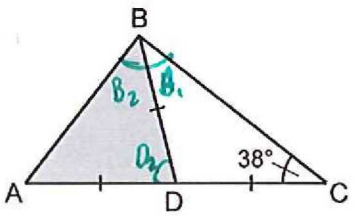
$= a$

40 (A1)

.....°

(3 marks)

13 Here is a triangle ABC.



$B_1 = 38$

$D_1 = 180 - 2 \times 38$ (M1) ← or → $D_2 = 38 \times 2$ (M1)

$= 104$ $D_2 = 76$

D lies on AC such that AD = DC = DB

Angle BCA = 38°.

Work out the size of angle ABC.

attempt to add $B_1 + B_2$ (M1)

$B_2 = \frac{104}{2} = 52$

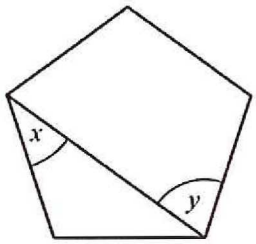
$ABC = 52 + 38 = 90$

90 (A1)

.....°

(3 marks)

14 Here is a regular pentagon.

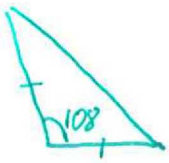


a Find the size of one interior angle

$180 - \frac{360}{5}$ (M1) or $\frac{180(5-2)}{5}$ (M1)

108 (A1) .....°

b Work out the size of angle x.



$\frac{72}{2} =$ (M1)

36 (A1) .....°

c Work out the size of angle y.

$108 - 36$ (M1)

72 .....°

(6 marks)

15 A regular polygon has an exterior angle of $x°$.

Given that the interior angle is 4 times the exterior angle, work out the value of x.

(M1) $4x + x = 180$

$5x = 180$

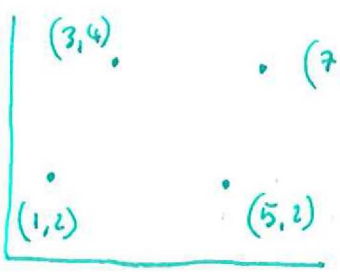
$x = \frac{180}{5}$ (M1)

36 (A1) .....

(3 marks)

16 A Parralelogram has vertices with the coordinates (1,2), (3,4), (5,2) and (p,q)

Find p and q.



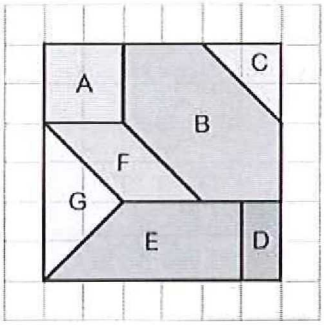
p=7 (A1) q=4 (A1)

(2 marks)

If you've finished, and checked your work, try this challenge.
YOU WILL **NOT** BE MARKED ON THIS SECTION

Challenge

16 A **tangram** is a puzzle made of seven shapes that fit together to make another shape.
Here is a tangram drawn on squared paper.



a Name each shape.

b Draw your own tangram on a similar square grid.
Try to include as many different shapes as possible.
Label each shape from A to G.
List the names of the shapes.

c Make a tangram that includes an arrowhead, kite and pentagon.

d Challenge a classmate to make a tangram that includes three shapes of your choice.